



Call for Proposals Autumn 2011

What does CSCS offer?

The Swiss National Supercomputing Centre (CSCS) provides compute and storage facilities for researchers in High Performance Computing (HPC)-based sciences. Scientists at all Swiss academic institutions can apply for computational resources.

Compute resources are allocated under different schemes: Preparatory Projects, Production Projects, Development Projects, and Data Analysis Projects. The schemes are described in the next page of this flyer.

Who can apply for resources?

Scientists holding at least the position of post-doc within their institution can apply for resources. PhD students cannot apply on their own, but instead must do so in consultation with, and under the auspices of their supervisor. In such cases the supervisor should be identified as the Principal Investigator (PI) for the project.

How to apply for resources

All requests must be submitted over the Proposal Submission Portal <http://www.cscs.ch/nss/submission>.

Production Projects, Development Projects, and Data Analysis Projects have two allocation periods, that is April 1st and October 1st. The deadlines to be considered for these two periods are posted well in advance on the webpage of CSCS.

**Submit Now For the Next
Allocation Period
Deadline
October 14th, 2011**

Main HPC Systems

Monte Rosa — Cray XE6



Monte Rosa is the largest production system at CSCS and will be upgraded in October 2011 to AMD Interlagos 2 x 16-core 64-bit CPUs, 32 GB per compute node, and high performance networking with Gemini 3D torus interconnect. It features a total of 1'496 nodes, that is 47'872 cores.

Production projects should target the Cray XE6, if they use highly scalable codes of excellent performance, and make use of MPI or hybrid OpenMP/MPI parallelization schemes.

Tödi — Cray XK6

This is the first GPU/CPU hybrid system with high scalability at CSCS, designed to run data parallel and computationally intensive applications.

It features 176 nodes, each with one 16-core AMD Opteron CPU, 32 GB DDR3 memory, and one NVIDIA Tesla X2090 GPU with 6 GB of GDDR5 memory.

Applications involving primarily local computation, heavy on floating point arithmetic but light on communication, should benefit from this architecture.



Allocation Schemes

Preparatory Projects

Preparatory projects are intended for users who are new to CSCS to allow them to port and test their codes before applying for a Production Project. Existing users who wish to port and test a new code or application may also apply for a Preparatory Project.

These projects are allocated for 3 months - a maximum extension of 3 months may be granted based on CSCS' evaluation of the request and have a small amount of compute resources.

Production Projects

Production projects are aimed at the production work for a specific scientific project. All submissions are subjected to a technical and feasibility assessment by CSCS and to a scientific review carried out by reviewers from an international pool.

Based on the scientific reviews, a panel of scientific experts meets twice a year to select projects and make an allocation recommendation.

Development Projects

Development projects are meant for work on innovative codes and algorithms.

Small development projects are only subjected to technical and feasibility assessment. Whereas large development projects will be handled like production projects and are subjected to a technical and feasibility assessment, and a scientific review followed by an allocation recommendation.

Data Analysis Projects

Data Analysis projects are targeted at data analysis instead of high-parallel computation. See the list of special purpose machines below.

Data Analysis Infrastructure



Matterhorn — Cray XMT

The next generation Cray XMT supercomputing system is a massively multi-threaded platform, with shared memory architecture mainly for large-scale data analysis, data mining, and data structuring. It features 2 TB of globally shared memory and 64 Cray Threadstorm processors which allow to run 8'192 simultaneous hardware threads.

Rothorn — SGI Altix UV-1000

The SGI Altix UV is a general-purpose system featuring large amounts of addressable memory (2TB of RAM in total) and 32 Intel 8-core processors in 16 blades. OpenMP codes are most suitable, and memory-intensive applications (e.g. in bioinformatics, data mining) will benefit in particular.